

IN THE CLAIMS:

Please add new claims 146-149 and amend the claims as follows:

1-133. (Cancelled)

134. (Currently Amended) An apparatus for treating and drying a substrate, the apparatus comprising:

- a chamber proportioned to process at least one substrate, the chamber including a lower portion and an upper portion;

- a source of a process fluid fluidly coupled to the lower portion of the chamber wherein the source is moveable between a closed position and an open position;

- a source of drying vapor fluidly coupled to an upper portion of the chamber configured to provide an atmosphere of drying vapor in the upper portion;

- an end effector having a substrate-receiving member moveable between the lower portion of the chamber and the upper portion of the chamber, the end effector operable to withdraw a substrate from process fluid in the lower portion into the atmosphere of drying vapor in the upper portion; and

- a megasonic transducer positioned to direct megasonic energy into process fluid in the chamber.

135. (Previously Presented) The apparatus of claim 134, wherein the transducer is positioned to form a band of megasonic energy propagating towards a surface of the substrate, wherein the end effector is positioned to move the substrate through the band, and wherein the megasonic energy induces thinning of a fluid boundary layer on a portion of the substrate passing through the band.

136. (Previously Presented) The apparatus of claim 135, wherein the end effector is configured to withdraw the substrate through the band at a rate of approximately 8–20 mm/sec.

137. (Previously Presented) The apparatus of claim 134, wherein the megasonic transducer is oriented to propagate energy in a direction normal to the substrate surface.

138. (Previously Presented) The method of claim 134, wherein the megasonic transducer is oriented to propagate energy at an angle that is less than normal to the substrate surface.

139. (Previously Presented) The apparatus of claim 134, further including a source of heated gas fluidly coupled to the chamber to volatilize fluid from a surface of a substrate.

140. (Previously Presented) The apparatus of claim 139, further including one or more inlets in the chamber for introduction of the heated gas into the chamber, and an end effector having a substrate-receiving portion moveable to translate a substrate past the inlets to accelerate evaporation.

141. (Previously Presented) The apparatus of claim 134, wherein the drying vapor comprises isopropyl alcohol.

142. (Previously Presented) The apparatus of claim 134, further comprising a vapor exhaust system for exhausting drying vapor from the system.

143. (Previously Presented) The apparatus of claim 134, wherein the process fluid comprises deionized water.

144. (Previously Presented) The apparatus of claim 134, wherein the chamber is proportioned to process only one substrate at a time.

145. (Previously Presented) The apparatus of claim 134, wherein the transducer is positioned such that megasonic energy induces thinning of a fluid boundary layer on the

substrate as the substrate is moved from the process fluid into the atmosphere of drying vapor.

146. (New) An apparatus for treating at least one substrate, comprising:

a chamber having an opening in an upper portion of the chamber sized to receive the at least one substrate;

a processing region proportioned to receive the at least one substrate, wherein the processing region has a lower interior portion and an upper interior portion;

means for causing turbulent flow, wherein the means for causing turbulent flow is coupled to the chamber in one or both of the lower interior region and the upper interior region;

an inlet and an outlet coupled to the chamber and in fluid communication with the lower portion of the chamber; and

an overflow weir coupled to the upper interior portion, the overflow weir having at least two ports coupled thereto.

147. (New) The apparatus of claim 146, further comprising an end effector.

148. (New) The apparatus of claim 146, wherein the means for causing turbulent flow comprises a transducer.

149. (New) The apparatus of claim 148, wherein the transducer is a megasonic transducer.